Evaluation of Fisheries Resources in Lower Cove Run, Hardy County, West Virginia

Conducted by:

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Background

The USDA Natural Resources Conservation Service is evaluating the proposed construction of a watershed dam on Lower Cove Run in Hardy County, West Virginia. Lower Cove Run is part of the Lost River Watershed and is located near Lost City, West Virginia. In cooperation with the Division of Natural Resources, Wildlife Resources Section, a fisheries evaluation was conducted to determine the current fisheries resources present in Lower Cove Run prior to dam construction. The construction of the Lower Cove Run watershed dam will convert the fisheries habitat of Lower Cove Run from a lotic to a lenthic habitat. The changes in fisheries habitat will result in a shift of the species composition throughout the reach of the impounded area.

Methods

The Lower Cove Run fisheries survey was conducted by triple pass backpack electrofishing. Block nets were placed at each end of a 100-meter stream reach and backpack electrofishing was conducted at a frequency of 120 Hz., 300 volts. The stream survey was located between 4310545 N, 0688275 E and 4310604 N, 0688196 E (NAD 83, UTM). The water temperature was 7.4^{o}C and the dissolved oxygen was 12.25 mg/L at the time of the survey.

Specimens were transported to the laboratory for identification and were either measured individually or placed in 10mm size classes. Specimens were weighed to the nearest 2 grams and size classed individuals were numerated and weighed as a group. Length frequencies were plotted for each species to evaluate species specific population size structure. A population estimate per 100 meters stream reach was calculated based on the Zippen iteration for each species. A total biomass was also calculated based on species specific population estimates.

Results

A total of 985 fishes were captured during the April 25, 2005 backpack electrofishing survey. Mottled sculpin *Cottus bairdi* was the most common species captured and 596 individual comprised 60.5% of the relative abundance. Blacknose dace *Rhinichthys atratulus* was the second most abundant species and comprised 22.9% of the catch (Table 1). Five additional species were also captured including: brook trout *Salvelinus fontinalis,* central stoneroller *Campostoma anomalum,* greenside darter *Etheostoma blennioides,* fantail darter *Etheostoma flabellare,* and longnose dace *Rhinichthys cataractae* (Table 1). The total biomass observed from the 100-meter stream reach was 3.004 Kg. Mottled sculpin and central stoneroller contributed most of the biomass, 1.609 and 0.61 Kg, respectively (Table 1).

Population estimates from the triple pass depletion method showed a total fish abundance of 1,267 fish per 100-meter stream reach (Table 2). Estimated biomass per 100-meter stream reach was 3.785 Kg (Table 2). Length frequencies were calculated for each species and indicated an adequate size structure for all species except brook trout (Figures 2 – 8).

Discussion

Two previous fish surveys have been conducted on Lower Cove Run. In 1965, the Lee Ranger District of the U.S. Forest Service conducted a fish survey. Similar species were found however, only 48 total fish were observed in a 100-ft. stream reach. No trout were observed during the U.S. Forest Service survey and therefore in March 1965, 76 pounds of brook trout were stocked and in May 1965, 61 pounds of rainbow trout were also stocked.

In 1973, the West Virginia Division of Natural Resources conducted an electrofishing survey approximately 1-mile upstream from the mouth of Cove Run. This location would have been in the vicinity of the 2005 stream survey. The survey showed very similar species compositions however, smallmouth bass *Micropterus dolomieu*, rockbass *Ambloplites rupestris*, and cutlips minnows *Exoglossum maxillingua* were observed in low density only during the 1973 survey. A total of 145 fishes were observed in a 100-yard stream reach of Lower Cove Run and the most abundant species observed during the 1973 survey was blacknose dace. The total fish abundance observed in 1973 survey was very similar to that observed during the 1965 survey conducted by the U.S. Forest Service. Four rockbass contributed the majority of the biomass in the 1973 survey. No trout were observed during the 1973 survey.

The 2005 Lower Cove Run stream survey indicated a very similar species composition and a population six times higher than previously reported. The total biomass observed during the 2005 survey was nearly four times higher than in previous studies. The Lower Cove Run non-game fisheries resources appear to be thriving; however few gamefish specimens were collected. Three small brook trout were observed during the 2005 survey but only age-1 fish were observed. Adult brook trout have been reported from upstream reaches of Lower Cove Run. Their presence is likely a function of preferred habitat in upstream reaches.

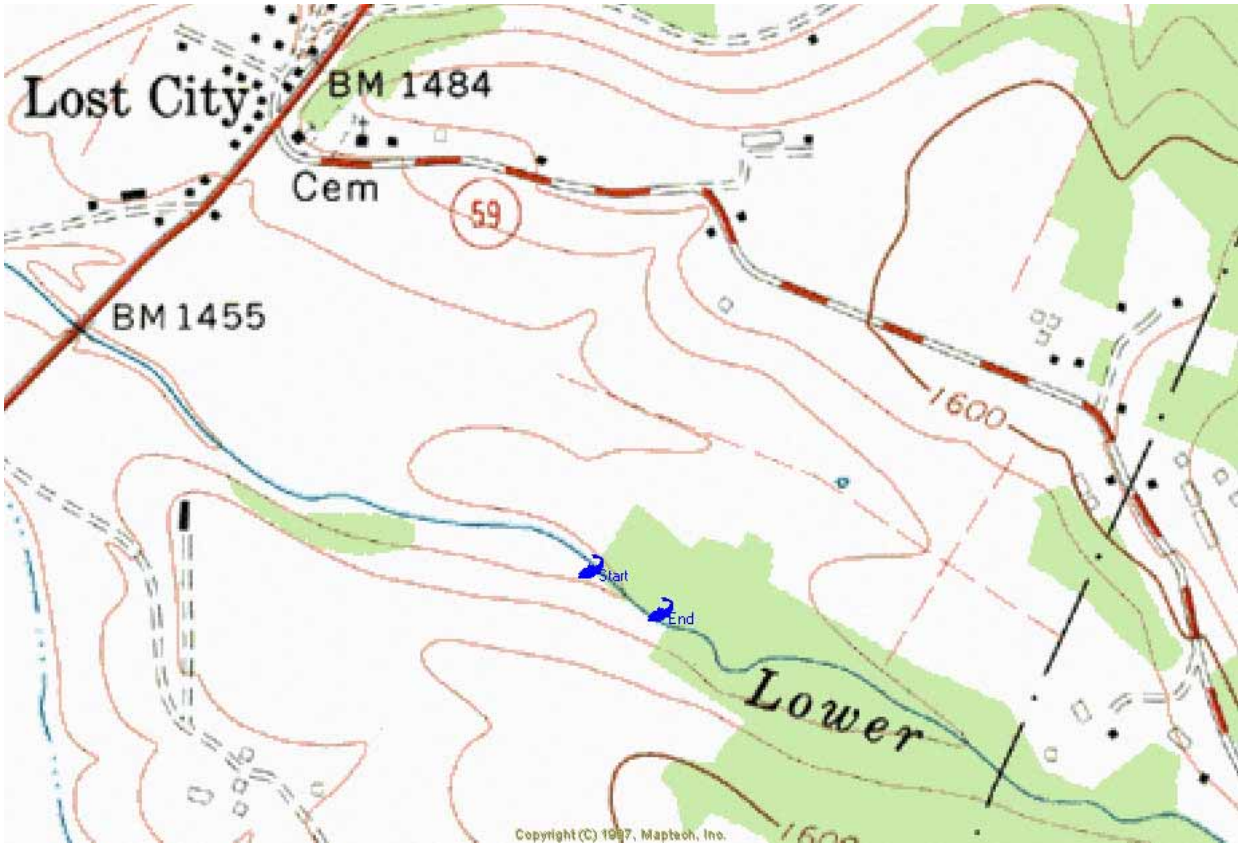

Figure 1. Location of backpack electrofishing survey conducted on Lower Cove Run, Hardy County, April 25, 2005.

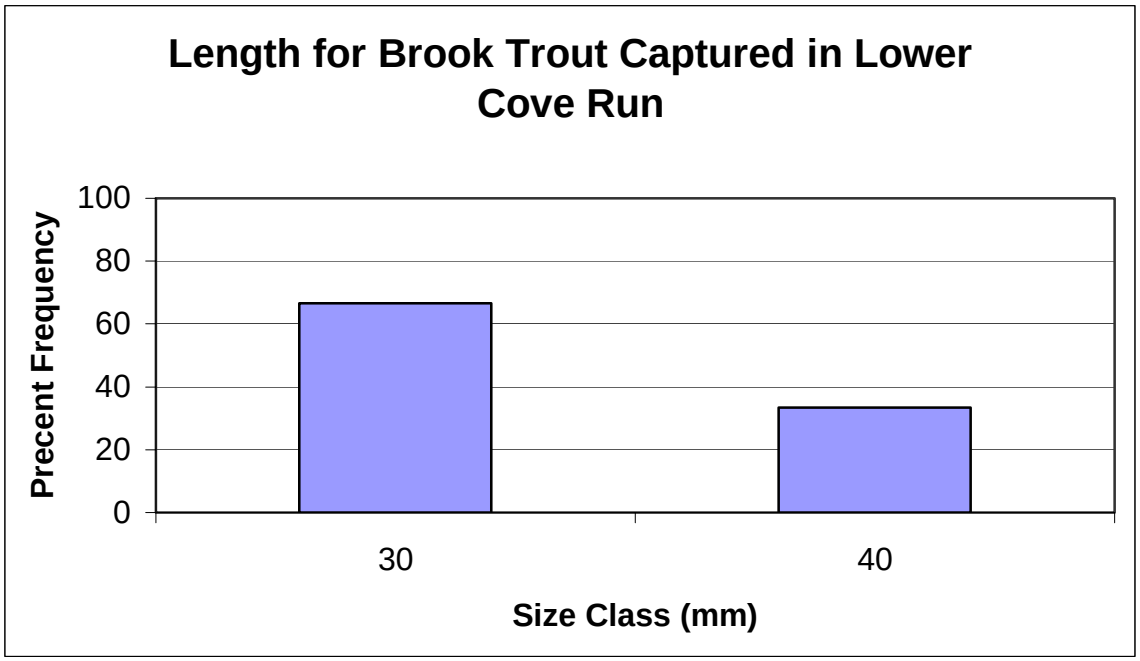

Figure 2. Length frequency of brook trout captured in Lower Cove Run, April 25, 2005.

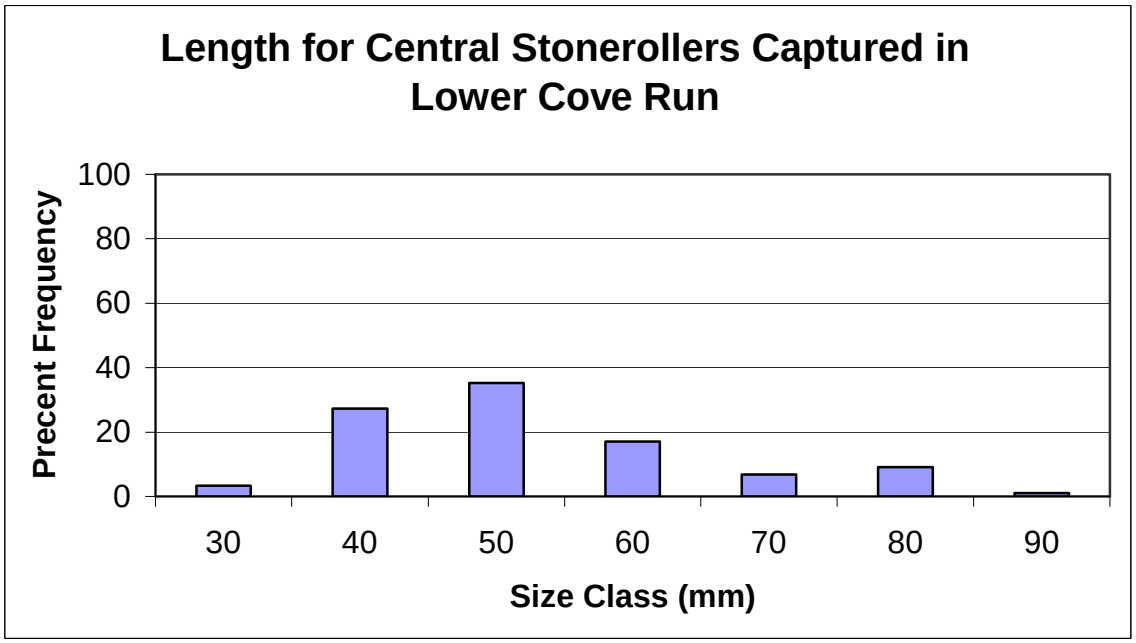

Figure 3. Length frequency of central stonerollers captured in Lower Cove Run, April 25, 2005.

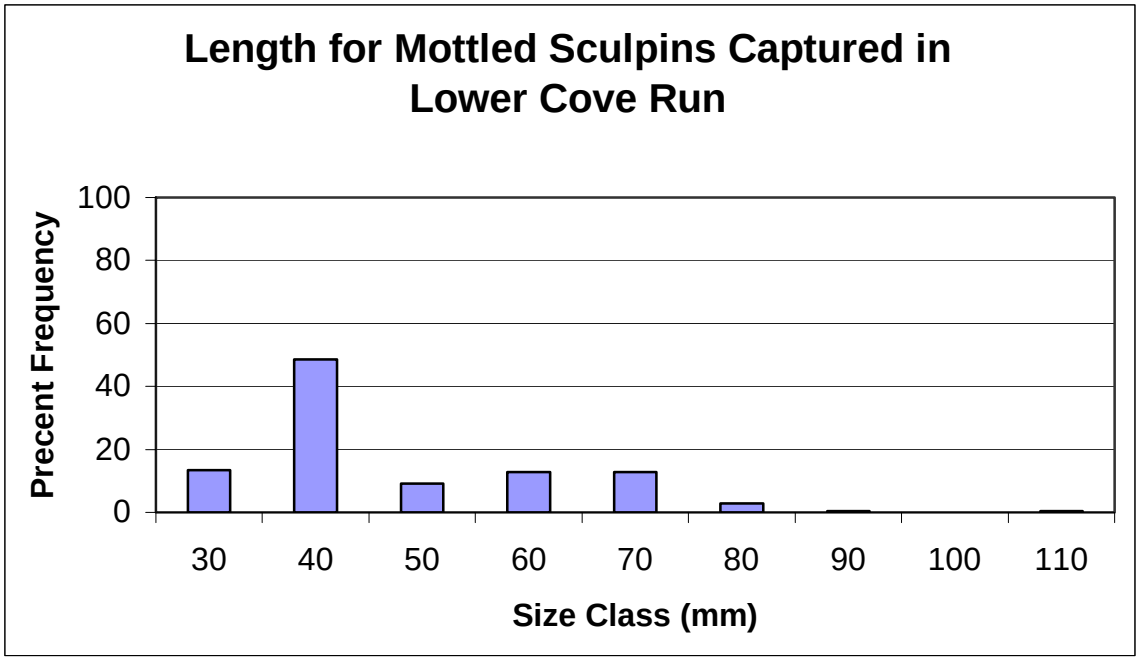

Figure 4. Length frequency of mottled sculpins captured in Lower Cove Run, April 25, 2005.

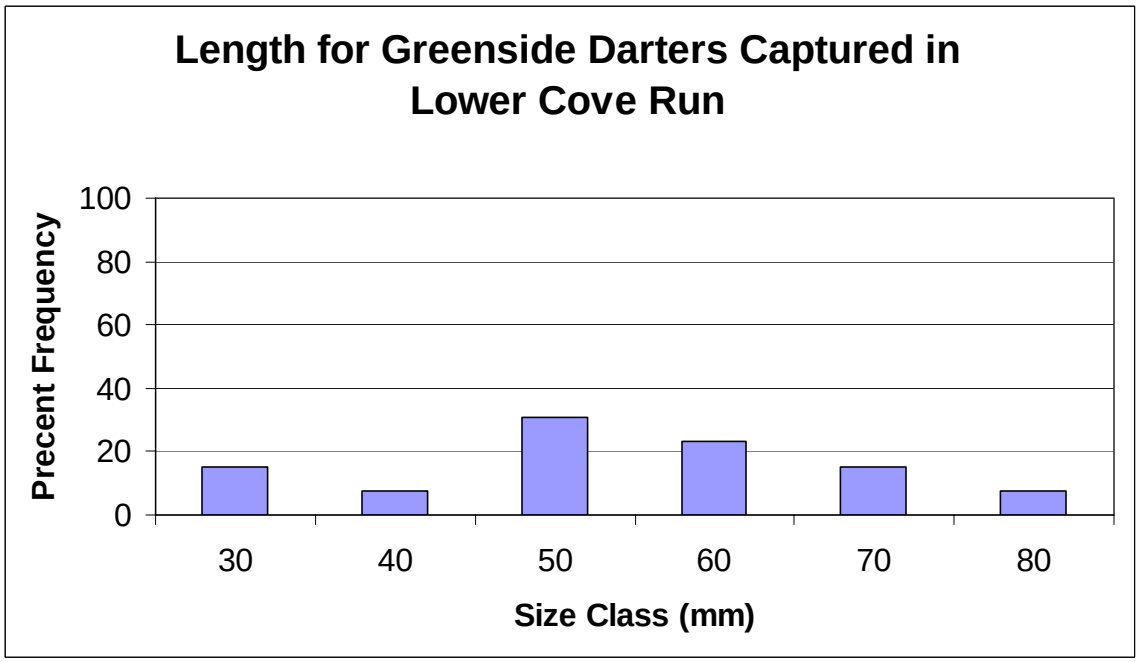

Figure 5. Length frequency of greenside darter captured in Lower Cove Run, April 25, 2005.

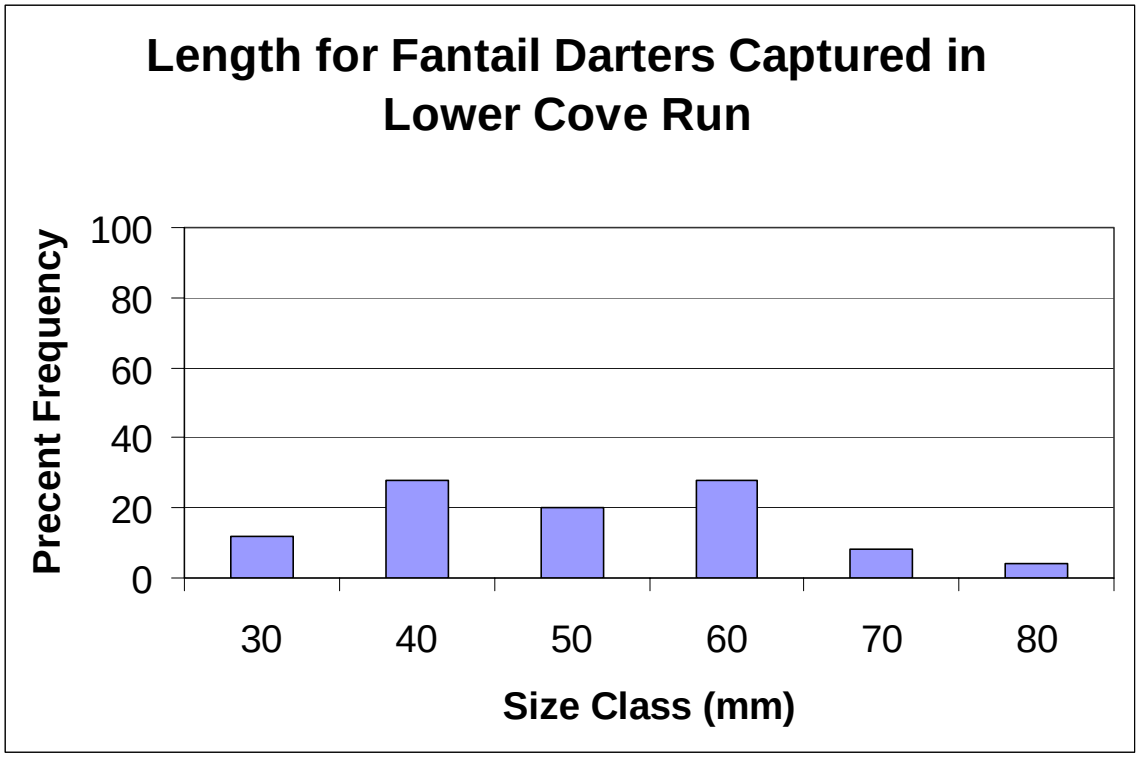

Figure 6. Length frequency of fantail darter captured in Lower Cove Run, April 25, 2005.

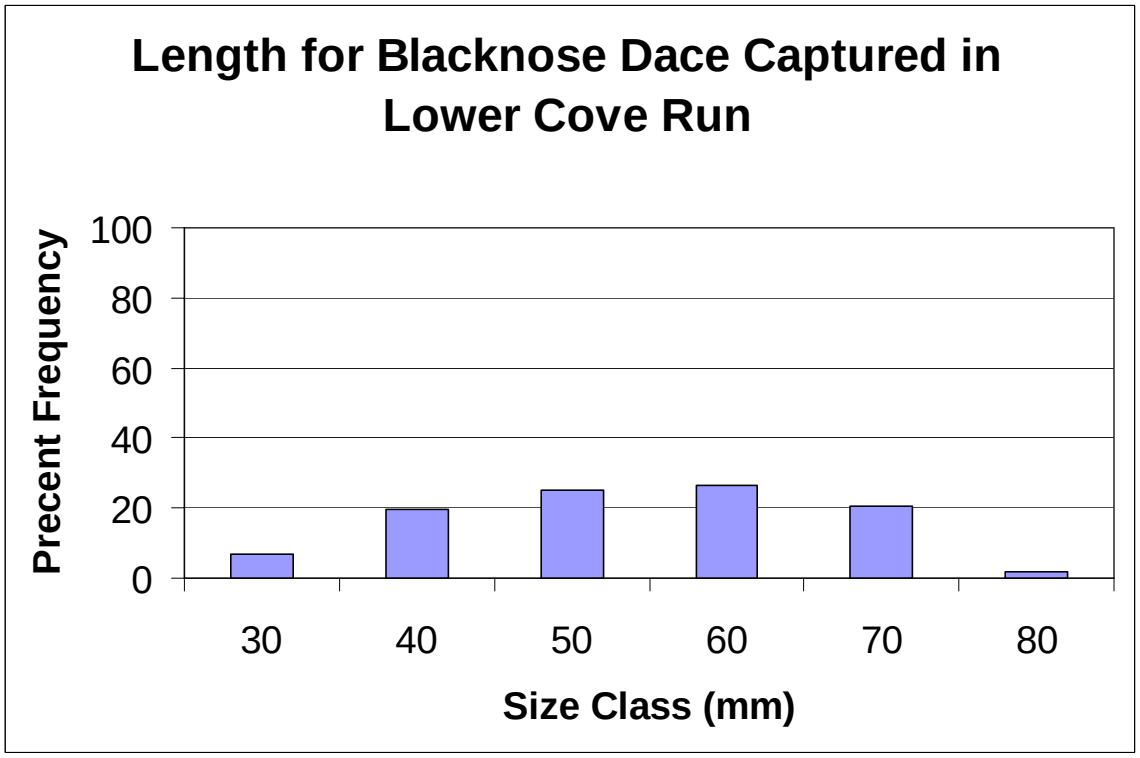

Figure 7. Length frequency of blacknose dace captured in Lower Cove Run, April 25, 2005.

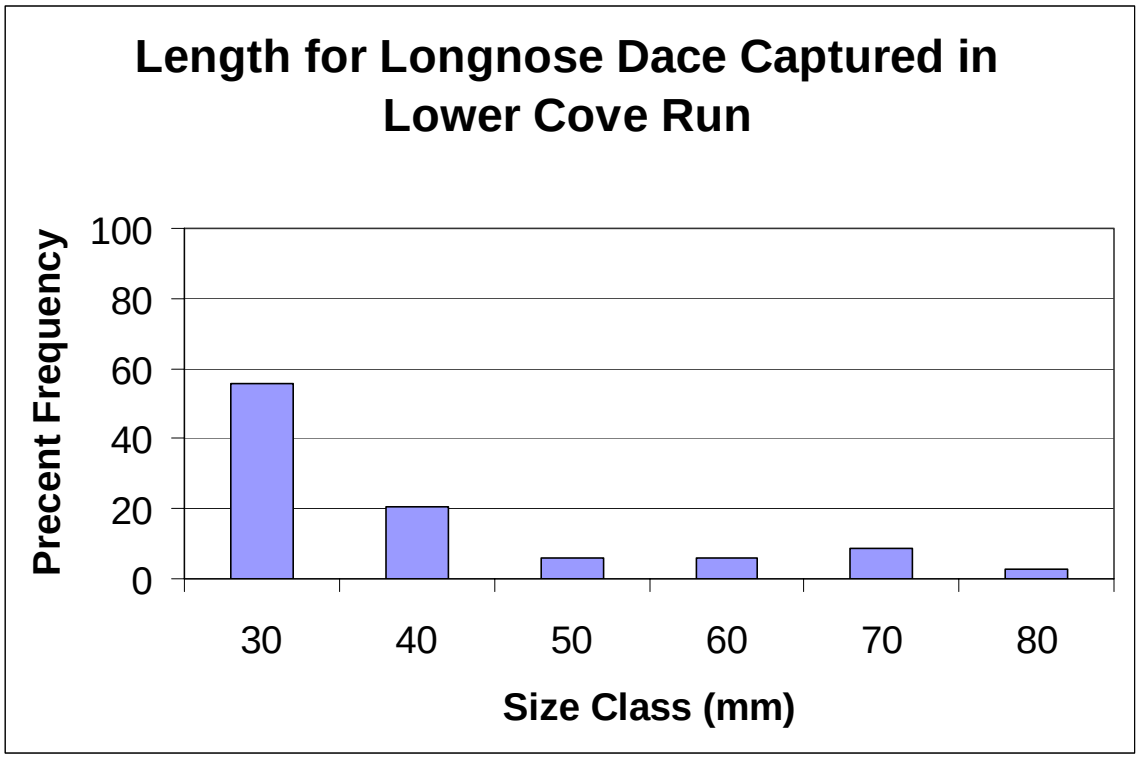

Figure 8. Length frequency of longnose dace captured in Lower Cove Run, April 25, 2005.

Table 1. Summary of catch from backpack electrofishing survey per 100-meter stream reach on Lower Cove Run, Hardy County, West Virginia, April 25, 2005.

Common Name	Scientific Name	Observed Abundance	Relative Abundance	Mean Length (mm)	Mean Weight (g)	Observed Standing Stock (Kg)
Brook Trout	Salvelinus fontinalis	3	0.003	32.3	1.0	0.003
Central Stoneroller	Campostoma anomalum	88	0.089	73.9	6.9	0.610
Mottled Sculpin	Cottus bairdi	596	0.605	47.5	2.7	1.609
Greenside Darter	Etheostoma blennioides	13	0.013	71.2	5.2	0.068
Fantail Darter	Etheostoma flabellare	25	0.025	49.4	2.4	0.061
Blacknose Dace	Rhinichthys atratulus	226	0.229	54.0	2.6	0.579
Longnose Dace	Rhinichthys cataractae	34	0.035	51.7	2.2	0.074
	Totals	985				3.004

Table 2. Population and biomass of estimates from backpack electrofishing survey per 100-meter stream reach on Lower Cove Run, Hardy County, West Virginia, April 25, 2005.

Common Name	Observed Abundance	Estimated Abundance	Observed Standing Stock (Kg)	Estimated Standing Stock (Kg)
Brook Trout	3	3.79	0.003	0.004
Central Stoneroller	88	97.10	0.610	0.673
Mottled Sculpin	596	764.90	1.609	2.065
Greenside Darter	13	15.46	0.068	0.081
Fantail Darter	25	82.55	0.061	0.201
Blacknose Dace	226	260.05	0.579	0.666
Longnose Dace	34	43.55	0.074	0.095
Totals	985	1,267	3.004	3.785